

**REMARKS**

Pursuant to the present amendment, claims 2 and 11 have been canceled, and claims 1, 6, 7, 10, 15, 16, 31 and 44 have been amended. Thus, claims 1, 3-10 and 12-48 are pending in the present application. No new matter has been introduced by way of the present amendment. Reconsideration of the present application in view of the amendments and arguments set forth herein is respectfully requested.

In the Office Action, claims 21-30, 32-43 and 45-48 were allowed. Claims 31 and 44 were rejected under 35 U.S.C. § 112. Pursuant to the present amendment, claims 31 and 44 have been amended in a manner believed to overcome the Examiner's rejection under 35 U.S.C. § 112. Accordingly, it is respectfully submitted that claims 21-48 are in condition for immediate allowance.

In the Office Action, the Examiner objected to the specification for allegedly failing to provide proper antecedent basis for the claimed subject matter. More specifically, the Examiner requested that the specification be amended to recite that the claim limitations of a semiconductive material made of silicon or germanium be added to the body of the specification. Applicants respectfully disagree. The claims recite a semiconductive substrate and further recite that this semiconductive substrate may be comprised of a variety of materials. Support for the claim limitations is set forth in the specification at, for example, p. 10, l. 6; p. 10, l. 15; p. 11, l. 2; and pp. 14-15. Thus, it is respectfully submitted that the specification need not be amended as the claims have been amended to include the language set forth in the specification, *i.e.*, the claims have been amended to consistently use the phrase a semiconductive substrate. Withdrawal of the objection to the specification is respectfully requested.

Claims 7, 16, 31 and 44 were rejected under 35 U.S.C. § 112 due to the use of the phrase semiconductive material. Pursuant to the present amendment, claims 7, 16, 31 and 44 have been amended to recite the limitation of a semiconductive substrate. Accordingly, it is respectfully submitted that the rejection under § 112 should be withdrawn.

In the Office Action, claims 1-20 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Applicants' admitted prior art in view of Park (U.S. Patent No. 6,268,640). Applicants respectfully traverse the Examiner's rejection.

As the Examiner well knows, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. Moreover, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); M.P.E.P. § 2143.03.

With respect to alleged obviousness, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Health-*

*care Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. The consistent criterion for determining obviousness is whether the prior art would have suggested to one of ordinary skill in the art that the process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991; *In re O'Farrell*, 853 F.2d 894 (Fed. Cir. 1988); M.P.E.P. § 2142.

Applying these legal principles, it is respectfully submitted that independent claims 1 and 10 have been amended in a manner so as to define patentable subject matter over the prior art of record. More specifically, pursuant to the present amendment, independent claims 1 and 10 have been amended to recite that the implant step performed to substantially amorphize exposed portions of the substrate is performed at a tilt angle of between 45 and 80 degrees. It is respectfully submitted that the prior art of record does not disclose or even remotely suggest this claimed limitation. The specification specifically notes that maintaining a relatively large tilt angle is an important aspect of the present invention as the amorphized regions formed thereby will extend well beneath the polysilicon gate structure. Specification, p. 16, l. 20 – p. 17, l. 9.

Although Park does disclose performing an amorphization implant process at an angle of about 10 to about 40 degrees, at no point does it disclose or even remotely suggest performing the amorphization implant process at the relatively large angles, *i.e.*, between 45-80 degrees, now set forth in the amended independent claims. If anything, Park can be thought to teach away from the present invention as it seeks to limit the maximum tilt angle to about 40 degrees. Thus,

it is respectfully submitted that the inventions defined by independent claims 1 and 10 are allowable over the art of record. A recent Federal Circuit case makes it crystal clear that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35.

It is also respectfully submitted that dependent claim 5 is likewise allowable over the art of record for independent reasons. Park discloses that the amorphization implant process may be performed at an implant energy of about 10-40 keV. According to claim 5, the implant energy is approximately 50-150 keV. Park simply does not disclose or suggest an implant energy at the elevated levels now recited in dependent claim 5. Accordingly, it is respectfully submitted that dependent claim 5 is allowable over the art of record for independent reasons.

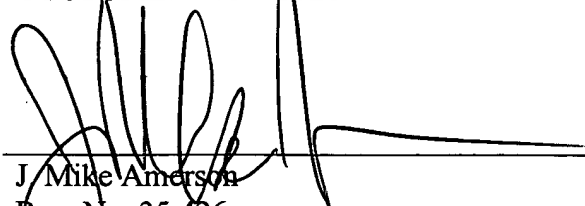
Pursuant to the present amendment, dependent claim 6 has been amended to depend from claim 5. According to dependent claim 6, the implant dose is in the range of approximately  $1 \times 10^{11}$  ions/cm<sup>2</sup> to  $1 \times 10^{14}$  ions/cm<sup>2</sup>. It is respectfully submitted that the detailed process recipe set forth in dependent claim 6, including the implant energy limitation from dependent claim 5, is nowhere remotely suggested in Park or any other art of record. Accordingly, it is respectfully submitted that dependent claim 6 is allowable over the art of record for independent reasons.

The arguments set forth above with respect to independent claim 1 apply equally to independent claim 10. Similarly, dependent claims 14 and 15 are believed to be allowable for the reasons set forth above with respect to dependent claims 5 and 6.

Accordingly, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4055 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

WILLIAMS, MORGAN & AMERSON  
CUSTOMER NO. 23720

A handwritten signature in black ink, appearing to read 'J. Mike Amerson', is written over a horizontal line. The signature is stylized with large, looped letters.

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